

Work Order ID 104205

104205

Page 1

July-09-13 11:42:11 AM

Item ID: 646.9711

Accept

N9000040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Blade

Start Date: 7/09/13

Start Qty: 40.00

40

Cust Item ID:

Required Date: 7/09/13

Req'd Qty: 40.00

40

Customer:

Reference:

Run Start

NR1

Approvals:

Process Plan: MLJ

Date: 13-07-12

Tooling:

Date:

Stop

NR2

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

646.9700

A

100

0.00

100

BAND SAW

13-07-29

50

0

Bandsaw

Memo

0.00

Jeaspa Bandsaw

Cut Blank at 4.625"

110

0.00

110

HAAS CNC VERTICAL MACHINING #1

13-08-01

50

0

SL

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

1-Machine per folio FB135

DWG REV: B

FOLIO REV: AA

2- deburr and break all sharp edges except otherwise noted

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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Work Order ID 104205

104205

Page 3

July-09-13 11:42:11 AM

Item ID: 646.9711 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Blade
 Start Date: 7/09/13 Start Qty: 40.00 *40* Cust Item ID:
 Required Date: 7/09/13 Req'd Qty: 40.00 *40* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Receive & Inspect for Damage & Mat'l Certs	0.00							
150						50x		80	
Packaging	Memo	0.00							
Packaging									13-8-23
155	QC5- Inspect part completeness to step on W/O	0.00							
155						50			
QC	Memo	0.00							
Quality Control									
160	Spray Painting per QSI005 4.2	0.00							
160						50	0	0	13
SprayPaint	Memo	0.00							13-12-7
Spray Painting	PRIME AS PER DWG, SEE NOTE #4								
	PRIMER BATCH: 127401								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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FAULT CATEGORY

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Picklist Print

July-09-13 11:42:10 AM

Page 1

Work Order ID: 104205

Parent Item: 646.9711

Parent Item Name: Blade

Start Date: 7/09/13

Required Date: 7/09/13

Start Qty: 40.00

Required Qty: 40.00

Comments: IPP REV:A NEW ISSUE 12/09/24 JFS VERIFY BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250		Purchased	No			100	f	107.4280	0.386	16.252632			
AISI A2 TOOL STEEL BAR, 0.500 X 1.250											<u>20.833'</u>		

13-07-29

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
MAT009	107.4280001	
123250	0.0000001	
125350	2.7576	
M126166	104.6704	

20.833'

DQA: _____ Date: _____



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APICAL

INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO. 03912

SHEET 1 L

DWG NO. 646.9700

REV: N/C

PREPARED BY: J. BECKER

DATE: 06/06/13

EFFECT D.
☒ INC. ☐ L

DWG TITLE: CUTTER SUB ASSY

APPROVED BY:

ENGR:

MFG

QC

EFF:

NEXT ORDER

TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

REASON: ADDED NOTE 9. ADDED SHEET 6. INCORPORATED
ECN'S 02744 AND 03838.

104205 ML5
13-07-12

7	C	646.9712	1		BODY (U CHANNEL)	1	2 9
	C	646.9702	X		CUTTER SUB ASSY (U CHANNEL)		
F/N	TC	PART NUMBER	.9702	.9701	DESCRIPTION	MATERIAL	SPECIFICATION
DOCUMENTS EFFECTED:					CHANGE CATEGORY	DER REVIEW REQUIRED	
					<input type="checkbox"/> MDL <input type="checkbox"/> INSTALL INSTRU <input type="checkbox"/> ICA <input checked="" type="checkbox"/> BOM	<input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

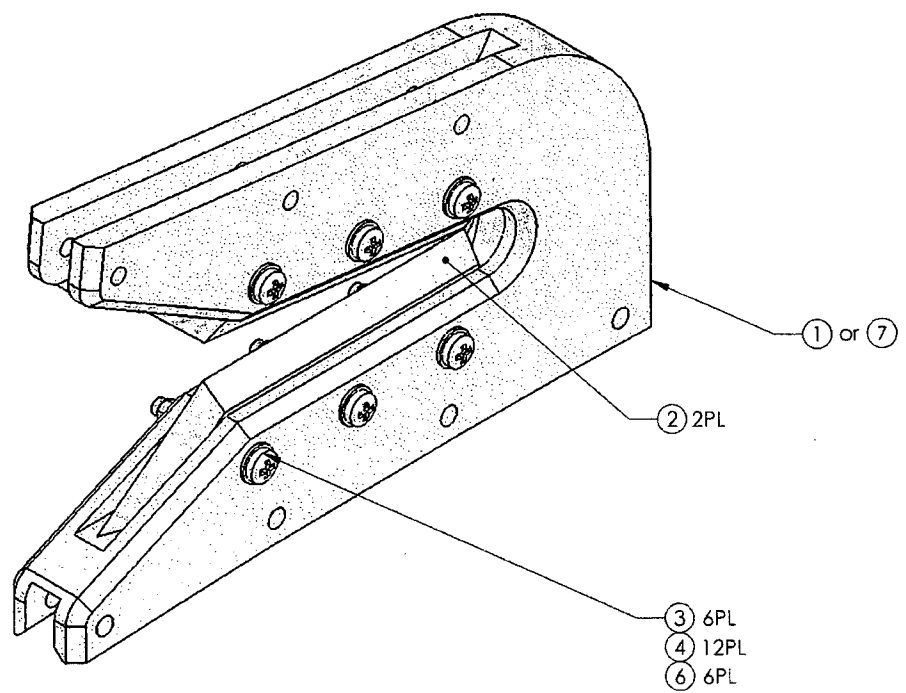
104205

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	LAST PROTOTYPE REVISION: P02		N/C
N/C	INITIAL RELEASE	05/29/09	P. BRAYO
A	INCORPORATED ECH 00714, 03818, 00915	06/04/13	V. BRAYO
B	INCORPORATED ECH 00967	07/02/13	P. BRAYO

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK; PRETREAT PRC-DESOTO PR-148 ADHESION PROMOTER; PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
6. IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.

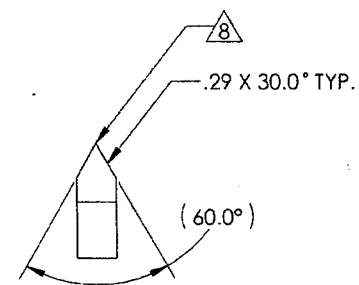
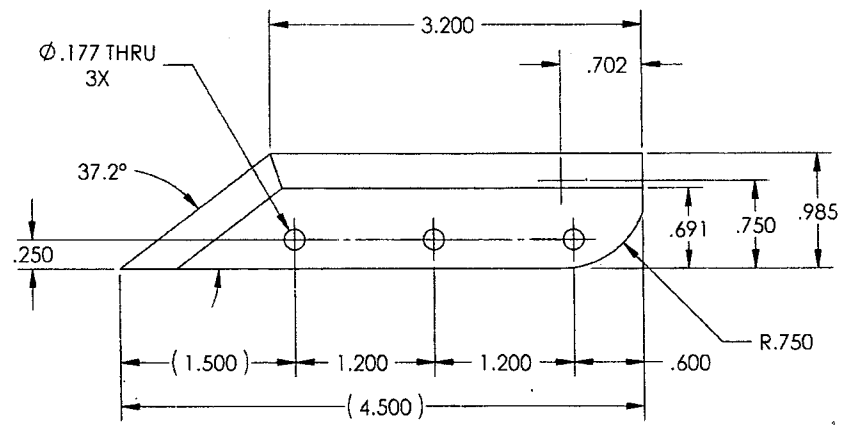
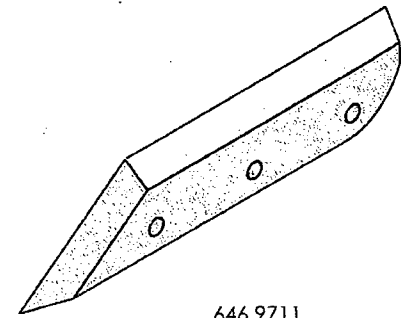
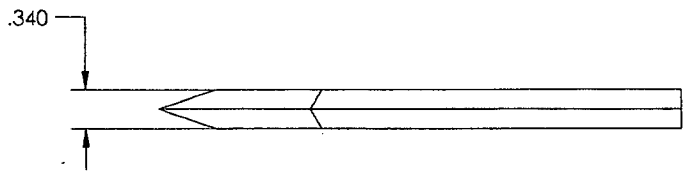


646.9701
or
646.9702

1	7	646.9712	BODY (U CHANNEL)	△	△△
6	6	601.1541	LOCKNUT	MS21042-08	
A/R	A/R	5	601.2764	RTV, LOCTITE 598	
12	12	4	601.2764	WASHER	MS11049-0328
6	6	3	601.2765	SCREW	MS27259-0619
2	2	2	646.9711	BLADE	△
	1	1	646.9710	BODY	△
			646.9702	CUTTER SUB ASSY (U CHANNEL)	
			646.9701	CUTTER SUB ASSY	
9702	9701	FINID #	PART #	DESCRIPTION	MATL SPEC.
QTY					
PARTS LIST					
NEXT ASSY (S)					
646.9600					
646.9700					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TO 3 DECIMALS ±0.01 3 PLACE DECIMALS 5000 INCHES 1"					
APICAL INDUSTRIES				REV	
2608 TEMPLE HEIGHTS DR.				B	
OCEANSIDE, CA. 92056-3512 (760)724-5300				B	
CUTTER SUB ASSY				B	
SCALE: NONE				SHEET 1 OF 6	

104205

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646.9711

ORIGINAL DATE JUL-29-07		APICAL INDUSTRIES	
DRAWN BY P. BICKLAND	CHECKED BY P. BICKLAND	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
DRAWING APPROVAL P. BICKLAND		CUTTER SUB ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS .01 ANGLES 1° & 6°		REV. CAGE CODE	DWG. NO.
		B 07/1/16	646.9700
		SCALE NONE	SHEET 5 OF 6

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC J7R 5A8
Tel: 450-473-1884 / Fax: 450-491-5498

Reçu de livraison

Delivery Receipt

BON DE TRAVAIL	EXPÉDITEUR	BON D'EXPÉDITION
Order	Shipper ID	Shipper
188538	1	73982

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

LIVRÉ À /Shipped To

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
Ph: 613-632-5200
Fax: 613-632-1053

COMMANDE DU CLIENT	BON DE LIVRAISON DU CLIENT	TYPE DE MATÉRIEL	DATE DE LA COMMANDE	TRANSPORTEUR
Customer PO	Customer Shipper No.	Material Type	Order Date	Carrier
PO20911		A2	2013/8/14	FEDEX

QUANTITÉ	No. PIÈCE	NOM DE LA PIÈCE	DESCRIPTION DE LA PIÈCE	POIDS
Quantity	Part No.	Part Name	Part Description	Weight

50 646.9711
(50) BLADE
REFERENCE 104205
MATERIAL: AISI A2 TOOL STEEL
58-62 RC

14,

CONTENANT: 1 BOÎTE DE CARTON

SPB-8-23

TYPE DE CONTENEUR	# DE CONTENEURS	COMMENTAIRES CONTENEUR
Container Type	# Of Containers	Container Comments
BOITE DE CARTON	1	

CERTIFICAT

EMPAQUETAGE Packing	
------------------------	--

QUANTITÉ EXPÉDIÉE / Quantity Shipped : 50

POIDS EXPÉDIÉ / Weight Shipped : 14,00

QUANTITÉ RESTANTE / Quantity Remaining : 0

POIDS RESTANT / Weight Remaining : 0,00

CERTIFICAT

QUANTITÉ EXPÉDIÉE /Quantity Shipped: 50

POIDS EXPÉDIÉ / Weight Shipped : 14,00

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2013/08/16



Metcor Inc.

560, boul. Arthur-Sauvé, St-Eustache (Québec) J7R 5A8

Tél. 450 473-1884

Télécopieur/Fax administration 450 491-5498

Télécopieur/Fax production 450 491-6454

Rapport d'Inspection

Inspection Report

BON DE TRAVAIL order	CHARGEMENT load
188538	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO20811		A2		

SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

VAC HARDEN

HARDEN AND TEMPER

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC	5	60.0 - 61.0 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
50	14	846.9711 (50) BLADE REFERENCE 104205 MATERIAL: AISI A2 TOOL STEEL 58-62 RC CONTENANT: 1 BOÎTE DE CARTON

COMMENTAIRES / comments

CERTIFIÉ par / Certified by:



DATE: 2013-08-16

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
188538	1

CLIENT / customer 215

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
1270 ABERDEEN
HAWKESBURY

ON K6A 1K7

1

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO20911		A2		
<u>SPÉCIFICATIONS DU PROCÉDÉ</u> processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement	SPÉCIFICATIONS / specified		TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC		5	60.0 - 61.0 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
50	14	646.9711 (50) BLADE REFERENCE 104205 MATERIAL: AISI A2 TOOL STEEL 58-62 RC CONTENANT: 1 BOÎTE DE CARTON

Operation	Temp. spécifiée Specified Temp	Temps de tremp Spécifié Specified Soak Temp	Atmosphere	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
1.00 CONT. INIT.	LAVAGE		si nécessaire							
2.00 PREPARING	COMPTAGE									
3.00 PREHEAT 1	1200	0:30	VAC			390				
4.00 PREHEAT 2	1500	0:30	VAC							
5.00 VAC HARDE	1800	1:00	VAC		AZOTE					
6.00 TEMPER	400+/-10°F	2 hrs	air			651				
7.00 TEMPER 2	400+/-10°F	2 hrs	air			651				

METCOR INC.
560 BOUL. ARTHUR-SAUVÉ
ST-EUSTACHE, QC, J7R 5A8
 Tel: 450-473-1884 / Fax: 450-491-5498

Certificat de Conformité Détaillé
 Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
188538	1

CLIENT / customer 215

DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE
 1270 ABERDEEN
 HAWKESBURY

ON K6A 1K7

1

Operation	Temp. spécifiée Specified Temp	Temps de trempage Spécifié Specified Soak Temp	Atmosphère	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
8.00 HARDN INS										
9.00 FINAL INSP							08-16-2013			08-16-2013

COMMENTAIRES / comments

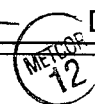
Le traitement thermique a été fait en utilisant des équipements en conformité avec la spécification demandée.
 Toutes les opérations de traitement thermique ont été faites en conformité avec les requis de la spécification demandée et toutes les vérifications et les tests demandés ont été faites et documentés.
 Aucun changement ou dérogation n'a été faite par rapport au traitement thermique demandé.
 On certifie que le matériel a été fabriqué, échantillonné, testé et inspecté en accord avec les spécifications du matériel et le bon de commande et le matériel rencontre les exigences spécifiés.

All the heat treatment processing performed on this order was accomplished using heat treatment equipment compliant with the requested heat treatment specification.
 All the heat treatment operations were accomplished in accordance with the requested/required heat treatment specification and all required verifications test have been performed and documented.
 No unauthorized changes or deviations to required heat treatment specifications or procedures have been performed.
 We certify that the material was manufactured, sampled, tested and inspected in accordance with the material specification and the purchase order and was found to meet the requirements.

APPROUVÉ par / Approved by:



DATE: 2013-08-20



/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client./We certify that all the information on this report is exact and in accordance with the order requirements.



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID: PO20911

Purchase Order Date: 8/13/2013

PO Print Date: 8/13/2013

Page Number 1 of 1

Order From :
METCOR INC.
560 BOUL. ARTHUR SAUVE
SAINT-EUSTACHE, QC J7R 5A8
CA

VC-MET004

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

FAKED
CX36813

Contact Name
Vendor Phone: 450 473 1884

Ship To Contact
Ship To Phone
Ship Via: FedEx PI collect
Ship Acct:

Buyer: Chantal Lavoie
Customer POID
Customer Tax #: 10127-2607
Terms: Net 30
Currency: CAD
FOB: Destination-Collect

Line Nbr	Reference Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	CD	Req Qty/ Unit of Measure	PO Unit Price	Extend Pri
	Line Comments		Promise Date				
	Delivery Comments						
1	104205	646.9711 blade	8/23/2013 Yes 8/23/2013		50.00	\$4.32	\$216.0
PART ARE MADE FROM: AISI A2 TOOL STEEL							
FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS							
Line Total:							\$216.0
2	104205	DETAIL C OF C	8/23/2013 Yes 8/23/2013		1.00	\$48.00	\$48.0
Line Total:							\$48.0
PO Total:							\$264.0

8/13-8-23

CL

Note: Pricing listed above is as per contract agreement between Dart Aerospace and the respective manufacturer.
No substitution or deviation without consent.
Certificate of Conformity or Material Certification required - YES NO
PST# 6122-5207

Change Nbr:

1

Change Date: 8/13/2013